WHAT IS CLAIMED IS:

1. An automotive lane deviation avoidance system comprising:

a control unit that executes a host vehicle's lane deviation control that a change in vehicle dynamic behavior occurs in a direction that avoids a host vehicle from deviating from a driving lane when there is a possibility of the host vehicle's lane deviation from the driving lane; and

the control unit comprising:

(i) a lane-deviation decision section that determines the presence or absence of the possibility of the host vehicle's lane deviation from the driving lane; and

(ii) a lane-deviation avoidance section that prevents the host vehicle from deviating from the driving lane by correcting the host vehicle's course in the direction that avoids the host vehicle's lane deviation in the presence of the possibility of the host vehicle's lane deviation from the driving lane, the lane-deviation avoidance section calculating a host vehicle's course correction value needed to avoid the host vehicle's lane deviation from the driving lane and additionally compensating for the host vehicle's course correction value based on a throttle opening of the host vehicle.

2. An automotive lane deviation avoidance system comprising:

a control unit that executes a host vehicle's lane deviation control that a change in vehicle dynamic behavior occurs in a direction that avoids a host vehicle from deviating from a driving lane when there is a possibility of the host vehicle's lane deviation from the driving lane; and

the control unit comprising:

(i) a lane-deviation decision section that determines the presence or absence of the possibility of the host vehicle's lane deviation from the driving lane;

(ii) a lane-deviation avoidance section that prevents the host vehicle from deviating from the driving lane by correcting the host vehicle's course in the direction that avoids the host vehicle's lane deviation in the presence of the possibility of the host vehicle's lane deviation from the driving lane; and

(iii) a throttle opening detection section that detects a throttle opening;

the lane-deviation avoidance section comprising:

(a) a host vehicle's course correction value calculation section that calculates a host vehicle's course correction value needed to avoid the host vehicle's lane deviation from the driving lane;

(b) a host vehicle's course correction value compensation section that compensates for the host vehicle's course correction value based on the throttle opening; and

(c) a host vehicle's course correction section that corrects the host vehicle's course in the direction that avoids the host vehicle's lane deviation, depending on the host vehicle's course correction value compensated for based on the throttle opening.

3. The automotive lane deviation avoidance system as claimed in claim 2, wherein:

the host vehicle's course correction value compensation section starts to compensate for the host vehicle's course correction value based on the throttle opening when the throttle opening exceeds a predetermined value, and decreasingly compensates for the host vehicle's course correction value so that the host vehicle's course

correction value decreases as the throttle opening increases from the predetermined value.

4. The automotive lane deviation avoidance system as claimed in claim 3, which further comprising:

an adaptive cruise control system that a host vehicle speed is controlled depending on an inter-vehicle distance between the host vehicle and a preceding vehicle;

wherein, when compensating for the host vehicle's course correction value based on the throttle opening, the host vehicle's course correction value compensation section compensates for the host vehicle's course correction value, so that a correction factor suited for an operative state of the adaptive cruise control system is relatively higher than a correction factor suited for an inoperative state of the adaptive cruise control system for the same throttle opening.

5. The automotive lane deviation avoidance system as claimed in claim 4, wherein:

the host vehicle's course correction value compensation section compensates for the host vehicle's course correction value, so that the predetermined value at which compensation for the host vehicle's course correction value is started during the operative state of the adaptive cruise control system, is set to be higher than the predetermined value at which compensation for the host vehicle's course correction value is started during the inoperative state of the adaptive cruise control system.

6. The automotive lane deviation avoidance system as claimed in claim 1, wherein:

the lane-deviation decision section estimates an estimate of a future lateral deviation of the host vehicle from a

central axis of the driving lane based on at least a host vehicle speed, a host vehicle's yaw angle with respect to a direction of the driving lane, a lateral deviation from the central axis of the driving lane, and a curvature of the driving lane; and

the lane-deviation decision section determines the presence of the possibility of the host vehicle's lane deviation from the driving lane, when the estimate of the future lateral deviation of the host vehicle is greater than or equal to a predetermined lane-deviation criterion.

7. The automotive lane deviation avoidance system as claimed in claim 2, wherein:

the host vehicle's course correction value calculation section calculates the host vehicle's course correction value based on a deviation between an estimate of a future lateral deviation of the host vehicle from a central axis of the driving lane, which estimate is calculated based on at least a host vehicle speed, a host vehicle's yaw angle with respect to a direction of the driving lane, a lateral deviation from the central axis of the driving lane, and a curvature of the driving lane, and a predetermined lane-deviation criterion.

8. The automotive lane deviation avoidance system as claimed in claim 2, wherein:

the host vehicle's course correction section comprises a braking-force and driving-force control system that produces a yawing moment, acting in the direction that avoids the host vehicle from deviating from the driving lane, by controlling at least one of a braking force and a driving force applied to each of road wheels of the host vehicle.

9. The automotive lane deviation avoidance system as claimed in claim 8, wherein:

the braking-force and driving-force control system automatically arbitrarily controls braking forces applied to the respective road wheels irrespective of a driver's braking action.

10. The automotive lane deviation avoidance system as claimed in claim 2, wherein:

the host vehicle's course correction section comprises a steering control system that applies a steering torque, acting in the direction that avoids the host vehicle from deviating from the driving lane, to a steering system.

11. An automotive lane deviation avoidance system comprising:

a control unit that executes a host vehicle's lane deviation control that a change in vehicle dynamic behavior occurs in a direction that avoids the host vehicle from deviating from a driving lane when there is a possibility of the host vehicle's lane deviation from the driving lane; and

the control unit comprising:

(i) a lane-deviation decision means for determining the presence or absence of the possibility of the host vehicle's lane deviation from the driving lane; and

(ii) a lane-deviation avoidance means for preventing the host vehicle from deviating from the driving lane by correcting the host vehicle's course in the direction that avoids the host vehicle's lane deviation in the presence of the possibility of the host vehicle's lane deviation from the driving lane, and for calculating a host vehicle's course correction value needed to avoid the host vehicle's lane deviation from the driving lane, and for compensating

for the host vehicle's course correction value based on a throttle opening of the host vehicle.

12. An automotive lane deviation avoidance system comprising:

a control unit that executes a host vehicle's lane deviation control that a change in vehicle dynamic behavior occurs in a direction that avoids the host vehicle from deviating from a driving lane when there is a possibility of the host vehicle's lane deviation from the driving lane; and

the control unit comprising:

(i) a lane-deviation decision means for determining the presence or absence of the possibility of the host vehicle's lane deviation from the driving lane;

(ii) a lane-deviation avoidance means for preventing the host vehicle from deviating from the driving lane by correcting the host vehicle's course in the direction that avoids the host vehicle's lane deviation in the presence of the possibility of the host vehicle's lane deviation from the driving lane; and

(iii) a throttle opening detection means for detecting a throttle opening;

the lane-deviation avoidance means comprising:

(a) a host vehicle's course correction value calculation means for calculating a host vehicle's course correction value needed to avoid the host vehicle's lane deviation from the driving lane;

(b) a host vehicle's course correction value compensation means for compensating for the host vehicle's course correction value based on the throttle opening; and

(c) a host vehicle's course correction means for correcting the host vehicle's course in the direction that avoids the host vehicle's lane deviation, depending on the

host vehicle's course correction value compensated for based on the throttle opening.

13. A method of avoiding an adaptive cruise control system equipped vehicle from deviating from a driving lane, the method comprising:

determining the presence or absence of a driver's intention for lane changing;

determining the presence or absence of a possibility that a host vehicle from deviating from a driving lane without the driver's intention for lane changing;

calculating a host vehicle's course correction value needed to avoid the host vehicle's lane deviation from the driving lane;

compensating for the host vehicle's course correction value based on a throttle opening of the host vehicle; and

avoiding the host vehicle's lane deviation from the driving lane by correcting the host vehicle's course by the host vehicle's course correction value compensated for based on the throttle opening in the presence of the possibility of the host vehicle's lane deviation from the driving lane without the driver's intention for lane changing.

14. The method as claimed in claim 13, wherein:

the host vehicle's course correction value is compensated for by a throttle-opening dependent gain, the gain remaining fixed to a predetermined constant value until a predetermined throttle opening is reached, and decreasing as the throttle opening increases from the predetermined throttle opening.

15. The method as claimed in claim 14, wherein:

a rate of decrease in the gain with respect to the throttle opening decreases as a host vehicle speed increases.

16. The method as claimed in claim 14, wherein:

the gain suited for an operative state of the adaptive cruise control system is set to be relatively higher than the gain suited for an inoperative state of the adaptive cruise control system for the same throttle opening.

17. The method as claimed in claim 14, wherein:

the predetermined throttle opening at which compensation for the host vehicle's course correction value is started during the operative state of the adaptive cruise control system, is set to be higher than the predetermined throttle opening at which compensation for the host vehicle's course correction value is started during the inoperative state of the adaptive cruise control system.

18. A method of avoiding an adaptive cruise control system equipped vehicle from deviating from a driving lane, the adaptive cruise control system equipped vehicle employing a braking-force and driving-force control system that produces a yawing moment, acting in a direction that avoids a host vehicle from deviating from the driving lane when there is a possibility of the host vehicle's lane deviation from the driving lane, by controlling at least one of a braking force and a driving force applied to each of road wheels of the host vehicle, the method comprising:

determining the presence or absence of a driver's intention for lane changing;

determining the presence or absence of the possibility of the host vehicle's lane deviation from the driving lane without the driver's intention for lane changing;

calculating a desired yawing moment needed to avoid the host vehicle's lane deviation from the driving lane;

compensating for the desired yawing moment based on a throttle opening of the host vehicle to derive a final desired yawing moment decreasingly compensated for by a throttle-opening dependent gain; and

avoiding the host vehicle's lane deviation from the driving lane by correcting the host vehicle's course by the final desired yawing moment in the presence of the possibility of the host vehicle's lane deviation from the driving lane without the driver's intention for lane changing.

19. A method of avoiding an adaptive cruise control system equipped vehicle from deviating from a driving lane, the adaptive cruise control system equipped vehicle employing a steering control system that produces a steering torque, acting in a direction that avoids a host vehicle from deviating from the driving lane when there is a possibility of the host vehicle's lane deviation from the driving lane, by controlling the steering torque applied to a steering system, the method comprising:

determining the presence or absence of a driver's intention for lane changing;

determining the presence or absence of the possibility of the host vehicle's lane deviation from the driving lane without the driver's intention for lane changing;

calculating a desired steering torque needed to avoid the host vehicle's lane deviation from the driving lane;

compensating for the desired steering torque based on a throttle opening of the host vehicle to derive a final desired steering torque decreasingly compensated for by a throttle-opening dependent gain; and

avoiding the host vehicle's lane deviation from the driving lane by correcting the host vehicle's course by the final desired steering torque in the presence of the possibility of the host vehicle's lane deviation from the driving lane without the driver's intention for lane changing.